dia; and also a study of *Thielaviopsis paradoxa*,[19] recently found to be the cause of a stem disease of the cocoanut palm in Ceylon.

In other *Circulars* issued during the latter part of 1910, E. E. GREEN presents a "Report on the outbreak of *Achatina fulica*," a ravaging snail; M. KELWAY BAMBER and R. H. LOCK discuss "The effect of different intervals between successive tappings in Para rubber (*Hevea brasiliensis*)"; Reports on "Cotton growing in Ceylon" and on "*Cymbopogon* grass oils in Ceylon" are published; and Director J. C. WILLIS presents the first of a series of directions as to "School gardening and nature study." WILLIS[20] has published also the first instalment of a revision of the catalogue of the vascular plants of Ceylon, published by TRIMEN in 1885.—J. M. C.

Effect of strontium salts on algae.—The chemical properties of calcium and strontium agreeing more closely than those of sodium and potassium, one might expect to easily substitute strontium for calcium in physiological relations. Investigations along the animal side have been to the contrary, and LOEW[21] has endeavored to gain further knowledge by tests with species of *Spirogyra* especially. Chemically equivalent solutions of calcium chloride (1 per cent) and strontium chloride (1.7 per cent) were used separately. The filaments remained for months in the calcium chloride practically intact. In the strontium chloride the injurious effects were manifested slowly, but within a month the chloroplasts became yellowish-green, less active in starch-making, and finally the cells died. In the strontium solution needle crystals developed in the cells, something which did not occur in the calcium solution. It appears obvious to the author that such crystals represent a combination of strontium with organic acid. Since the algae endure the strontium salt longer than any other except calcium, it seems that strontium does not rapidly displace from important positions in the protoplasm other metallic elements such as potassium and magnesium. According to the law of mass-action such a displacement would be expected. A discussion of why strontium does not physiologically replace calcium leaves the reader with little to cling to.—RAYMOND H. POND.

Anatomy of Riccia.—Taxonomists separate the genus *Riccia* into two subgenera, *Euriccia* and *Ricciella*. In the former the dorsal region of the thallus consists of columns of cells split at the corners, each 4 columns of cells thus inclosing a long narrow air chamber having no lateral communications; in the latter, flat lamellae bounding the relatively large air chambers. STEPHANI, however, studying *R. vesiculosus*, in which 8 cells bound the air chamber, places this form in the subgenus *Ricciella*, and says: "Dividing the genus into

[19] PETCH, T., *Thielaviopsis paradoxa* (de Seynes) v. Höhnel. *Idem* 511–574.

[20] WILLIS, J. C., A revised catalogue of the flowering plants and ferns of Ceylon. *Idem* 467–510.

[21] LOEW, OSCAR, Ueber die Wirkung von Strontiumsalzen auf Algen. Flora **102**: 96–112. 1911.